Amendments to the Specification begin on page 3 of this paper.

Remarks begin on page 9 of this paper.

Amendments to the Specification:

Please replace paragraph **[0012]** beginning at page 5, line 3, with the following:

--**[0012]** The secretion domains that are linked to the RNAP can be synthesized or obtained from any of a variety of different sources. For example, the secretion domains can be chosen from the following secretion domains: SEQ ID NO: 1 (HIV-Tat, Tyr-Gly-Arg-Lys-Lys-Arg-Arg-Gln-Arg-Arg-Arg); SEQ ID NO: 2 (HIV-Tat Variant, Tyr-Ala-Arg-Lys-Ala-Arg-Arg-Gln-Ala-Arg-Arg); SEQ ID NO: 3 (HIV-Tat Variant, Tyr-Ala-Arg-Ala-Ala-Ala-Arg-Gln-Ala-Arg-Ala); SEQ ID NO: 4 (HIV-Tat Variant, Tyr-Ala-Arg-Ala-Ala-Arg-Ala-Ala-Arg-Arg-Arg); SEQ ID NO: 5 (HIV-Tat Variant, Tyr-Ala-Arg-Ala-Ala-Arg-Ala-Ala-Arg-Arg-Ala); SEQ ID NO: 6 (HIV-Tat Variant, Tyr-Ala-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg); SEQ ID NO: 7 (HIV-Tat Variant, Tyr-Ala-Ala-Ala-Ala-Arg-Arg-Arg-Arg-Arg-Arg); SEQ ID NO: 8 (HIV-Tat Variant, Ala-Gly-Arg-Lys-Lys-Arg-Arg-Gln-Arg-Arg-Arg); SEQ ID NO: 9 (HSV VP22, Asp-Ala-Ala-Thr-Ala-Thr-Arg-Gly-Arg-Ser-Ala-Ala-Ser-Arg-Pro-Thr-Glu-Arg-Pro-Arg-Ala-Pro-Ala-Arg-Ser-Ala-Ser-Arg-Pro-Arg-Arg-Pro-Val-Glu); SEQ ID NO: 10 (Antennapedia third Helix, 43-58, Penetratin-1, Arg-Gln-Ile-Lys-Ile-Trp-Phe-Gln-Asn-Arg-Arg-Met-Lys-Trp-Lys-Lys); SEQ ID NO: 11 (Antennapedia third Helix, 53-43, Lys-Lys-Trp-Lys-Met-Arg-Arg-Asn-Gln-Phe-Trp-Ile-Lys-Ile-Gln-Arg); SEQ ID NO: 12 (Antennapedia third Helix, 43-58, D-amino acids Arg-Gln-Ile-Lys-Ile-Trp-Phe-Gln-Asn-Arg-Arg-Met-Lys-Trp-Lys-Lys); SEQ ID NO: 13 (Antennapedia third Helix, 43-58, Pro50, Arg-Gln-Ile-Lys-Ile-Trp-Phe-Pro-Asn-Arg-Arg-Met-Lys-Trp-Lys-Lys); SEQ ID NO: 14 (Antennapedia third Helix, 43-58, 3-Pro, Arg-Gln-Pro-Lys-Ile-Trp-Phe-Pro-Asn-Arg-Arg-Lys-Pro-Trp-Lys-Lys); SEQ ID NO: 15 (Antennapedia third Helix, 43-58, R52M/M54R, Arg-Gln-Ile-Lys-Ile-Trp-Phe-Gln-Asn-Met-Arg-Arg-Lys-Trp-Lys-Lys); SEQ ID NO: 16 (Antennapedia third Helix, 43-58, 7-Arg, Arg-Gln-Ile-Arg-Ile-Trp-Phe-Gln-Asn-Arg-Arg-Met-Arg -Trp-Arg -Arg); SEQ ID NO: 17 (Antennapedia third Helix, 43-58, W/R, Arg-Arg-Trp-Arg-Arg-Trp-Trp-Arg-Arg-Trp-Trp-Arg-Arg-Trp-Arg-Arg); SEQ ID NO: 18 (Kaposi's FGF signal sequence, truncated Ala-Ala-Val-Ala-Leu-Leu-Pro-Ala-Val-Leu-Leu-Ala-Leu-Leu-Ala-Pro); SEQ ID NO: 19 (the amino terminal secretory signal of human IL-2; Met-Tyr-Arg-Met-

Gln-Leu-Leu-Ser-Cys-Ile-Ala-Leu-Ser-Leu-Ala-Leu-Val-Thr-Asn-Ser); SEQ ID NO: 20 (cytokine signal sequence); Met-Tyr-Arg-Met-Ala-Leu-Leu-Ser-Cys-Ile-Ala-Leu-Ser-Leu-Ala-Leu-Val-Thr-Asn-Ser); and SEQ ID NO: 21 (Met-Thr-Ser-Arg-Arg-Ser-Val-Lys-Ser-Gly-Lys-Arg-Glu-Val-Lys-Arg-Asp-Glu-Tyr-Glu-Asp-Leu-Tyr-Tyr-Thr-Lys-Ser-Ser-Gly-Ile-Ala-Ser-Lys-Asp-Ser-Lys-Lys-Asp-Thr-Ser-Arg-Arg-Gly-Ala-Leu-Gln-Thr-Arg-Ser-Arg-Gln-Arg-Gly-Glu-Val-Arg-Phe-Val-Gln-Tyr-Asp-Glu-Ser-Asp-Tyr-Ala-Leu-Tyr-Gly-Gly-Ser-Ser-Ser-Glu-Asp-Asp-Glu-His-Pro-Glu-Val-Lys-Arg-Thr-Arg-Arg-Lys-Val-Ser-Gly-Ala-Val-Leu-Ser-Gly-Lys-Gly-Lys-Ala-Arg-Ala-Lys-Lys-Lys-Lys-Ala-Gly-Ser-Gly-Gly-Ala-Gly-Arg-Thr-Lys-Thr-Thr-Ala-Lys-Arg-Ala-Lys-Arg-Thr-Gln-Arg-Val-Ala-Thr-Lys-Ala-Lys-Ala-Ala-Lys-Ala-Ala-Glu-Thr-Thr-Arg-Gly-Arg-Lys-Ser-Ala-Gln-Lys-Glu-Ser-Ala-Ala-Leu-Lys-Asp-Ala-Lys-Ala-Ser-Thr-Ala-Lys-Thr-Arg-Ser-Lys-Thr-Lys-Ala-Gln-Gly-Leu-Ala-Arg-Lys-Leu-His-Phe-Ser-Thr-Ala-Lys-Lys-Asn-Lys-Asp-Ala-Lys-Trp-Thr-Lys-Arg-Val-Ala-Gly-Phe-Asn-Lys-Arg-Val-Phe-Cys-Ala-Ala-Val-Gly-Arg-Leu-Ala-Ala-Met-His-Ala-Arg-Met-Ala-Ala-Val-Gln-Leu-Trp-Asp-Met-Ser-Arg-Lys-Arg-Thr-Asp-Glu-Asp-Leu-Asn-Glu-Leu-Leu-Gly-Ile-Thr-Thr-Ile-Arg-Val-Thr-Val-Cys-Glu-Gly-Lys-Asn-Leu-Leu-Gln-Arg-Ala-Asn-Glu-Leu-Val-Asn-Lys-Asp-Val-Val-Gln-Asp-Val-Asp-Ala-Ala-Thr-Ala-Thr-Arg-Gly-Arg-Ser-Ala-Ala-Ser-Arg-Lys-Thr-Glu-Arg-Lys-Arg-Ala-Lys-Ala-Arg-Ser-Ala-Ser-Arg-Lys-Arg-Arg-Lys-Val-Glu-Ser), SEQ ID NO:26 (IL-4 signal sequence Met-Gly-Leu-Thr-Ser-Gln-Leu-Leu-Pro-Pro-Leu-Phe-Phe-Leu-Leu-Ala-Cys-Ala-Gly-Asn-Phe-Val-His-Gly), SEQ ID NO:27 (VP22 Met-Thr-Ser-Arg-Arg-Ser-Val-Lys-Ser-Gly-Pro-Arg-Glu-Val- Pro -Arg-Asp-Glu-Tyr-Glu-Asp-Leu-Tyr-Tyr-Thr- Pro -Ser-Ser-Gly-Met-Ala-Ser- Pro -Asp-Ser- Pro-Pro -Asp-Thr-Ser-Arg-Arg-Gly-Ala-Leu-Gln-Thr-Arg-Ser-Arg-Gln-Arg-Gly-Glu-Val-Arg-Phe-Val-Gln-Tyr-Asp-Glu-Ser-Asp-Tyr-Ala-Leu-Tyr-Gly-Gly-Ser-Ser-Ser-Glu-Asp-Asp-Glu-His-Pro-Glu-Val- Pro -Arg-Thr-Arg-Arg- Pro -Val-Ser-Gly-Ala-Val-Leu-Ser-Gly- Pro -Gly- Pro -Ala-Arg-Ala- Pro-Pro-Pro-Pro -Ala-Gly-Ser-Gly-Gly-Ala-Gly-Arg-Thr- Pro -Thr-Thr-Ala- Pro -Arg-Ala- Pro -Arg-Thr-Gln-Arg-Val-Ala-Thr-Lys-Ala-Pro -Ala-Ala- Pro -Ala-Ala-Glu-Thr-Thr-Arg-Gly-Arg-Lys-Ser-Ala-Gln- Pro -Glu-Ser-Ala-Ala-Leu- Pro -Asp-Ala- Pro -Ala-Ser-Thr-Ala- Pro -Thr-Arg-Ser-Lys-Thr- Pro -Ala-Gln-Gly-Leu-Ala-Arg-Lys-Leu-His-Phe-Ser-Thr-Ala- Pro-Pro-Asn- Pro -Asp-Ala- Pro -Trp-Thr- Pro -Arg-Val-Ala-Gly-Phe-Asn-Lys-Arg-Val-Phe-Cys-Ala-Ala-Val-Gly-Arg-Leu-Ala-Ala-Met-His-Ala-

Arg-Met-Ala-Ala-Val-Gln-Leu-Trp-Asp-Met-Ser-Arg- Pro -Arg-Thr-Asp-Glu-Asp-Leu-Asn-Glu-Leu-Leu-Gly-Ile-Thr-Thr-Ile-Arg-Val-Thr-Val-Cys-Glu-Gly-Lys-Asn-Leu-Leu-Gln-Arg-Ala-Asn-Glu-Leu-Val-Asn- Pro -Asp-Val-Val-Gln-Asp-Val-Asp-Ala-Ala-Thr-Ala-Thr-Arg-Gly-Arg-Ser-Ala-Ala-Ser-Arg- Pro -Thr-Glu-Arg- Pro -Arg-Ala- Pro -Ala-Arg-Ser-Ala-Ser-Arg- Pro -Arg-Arg- Pro -Val-Glu-Gly), SEQ ID NO:28 (Arg-Arg-Arg-Arg-Gly-Cys), SEQ ID NO:29 (Arg-Arg-Arg-Arg-Arg-Gly-Cys), SEQ ID NO:30 (Arg-Arg-Arg-Arg-Arg-Arg-Gly-Cys), SEQ ID NO:31 (Arg-Arg-Arg-Arg-Arg-Arg-Arg-Gly-Cys), SEQ ID NO:32 (Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Gly-Cys), SEQ ID NO:33 (Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Gly-Cys), SEQ ID NO:34 (Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Gly-Cys), SEQ ID NO:35 (Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Gly-Cys), SEQ ID NO:36 (Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Gly-Cys), SEQ ID NO:37 (Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Gly-Cys), SEQ ID NO:38 (Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Gly-Cys), SEQ ID NO:39 (Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Gly-Cys), SEQ ID NO:40 (Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Gly-Cys), SEQ ID NO:41 (Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Gly-Cys), SEQ ID NO:42 (Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Gly-Cys), SEQ ID NO:43 (Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Gly-Cys), SEQ ID NO:44 (Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Arg-Gly-Cys), and SEQ ID NO:45 (Kaposi's FGF signal sequence, full length ~~Met, Ser, Gly, Asp, Gly, Thr, Ala-Ala-Val-Ala-Leu-Leu-Pro-Ala-Val-Leu-Leu-Ala-Leu-Leu-Ala-Pro~~ Met-Ser-Gly-Asp-Gly-Thr-Ala-Ala-Val-Ala-Leu-Leu-Pro-Ala-Val-Leu-Leu-Ala-Leu-Leu-Ala-Pro).--

Please replace paragraph **[0013]** beginning at page 7, line 14, with the following:

--**[0013]** In certain preferred embodiments, the IRES is a viral IRES sequences, *e.g.*, IRES sequences from picornaviriuses, flaviviruses, retroviruses, and herpesviruses as described in

Vagner *et al., EMBO reports* 21(101):893-898 (2001) and Hellen and Sarnow, *Genes & Gev.* 15:1593-1612 (2001)). In a particularly preferred embodiment, the IRES is from encephalomyocarditis virus (*e.g.*, nucleotides 1448-2030 of SEQ ID NO:46, nucleotides 5378-5936 of SEQ ID NO:46, or nucleotides 261-849 of GenBank Accession No. ~~X73412~~ X74312). In other embodiments, the IRES sequences are mammalian IRES sequences (*e.g.*, IRES sequences from c-myc, N-myc, c-jun, myt2, AML1/RUNX1, Gtx, Mnt,Nkx6.1, NRF, YAP1, Smad5, HIF-1 alpha, La autoantigen, eIF4GI, p97/DAP5/NAT1, XIAP, APC, Apaf-1, BAG-1, Bip/GRP78, FGF2, PDGF2/c-Sis, VEGF-A, IGF-II, Estrogen receptor alpha, IGF-1 receptor, Notch2, Connexin 43, Connexin 32, Cyr61, ARC, MAP2, Pim-1, p58 PITSLRE, alpha-CaM kinase II, CDK inhibitor p27, Protein kinase Cdelta, KV.14, Beta F1-ATPase, Cat-1, ODC, dendrin, Neurogranin/RC3, NBS1, FMR1, Rbm3, NDST (heparan sulfate/heparin GlcNAc N-deacetylase/N-sulfotransferase) as described in Vagner *et al.*, *supra* 2001 and Hellen and Sarnow, *supra* 2001.--

Please replace paragraph **[0037]** beginning at page 14, line 3, with the following:

--**[0037]** The present invention provides nucleic acids and methods of expressing a product of interest in a cell. In some embodiments, the nucleic acids are vectors (*i.e.*, bicistronic autogene constructs) comprising expression cassettes comprising (1) a eukaryotic promoter and a first RNA polymerase promoter operably linked to a nucleic acid encoding a secretable RNA polymerase comprising a RNA polymerase and a secretion domain, and a first internal ribosome entry site (IRES); and (2) a second RNA polymerase promoter operably linked to a nucleic acid encoding a product of interest and a second IRES. To express a product of interest, the expression cassette is introduced into a suitable cell. Typically the expression cassette encoding the therapeutic product is present on the same nucleic acid molecule as the secretable RNA polymerase expression cassette.--

Please replace paragraph **[0083]** beginning at page 25, line 28, with the following:

--**[0083]** Methods for generating transducible Tat fusion proteins are known in the art (see *e.g.*, Vocero-Akbani *et al.* (2000) *Methods Enzymol.* 322:508-521). The Tat fusion proteins can be tagged with an oligohistidine stretch on the N-terminus to facilitate purification. (Vocero-Akbani *et al.* (2000)). For example, a histidine tagged Tat domain (Arg-Lys-Lys-Arg-Arg-Gln-Arg-Arg-Arg; SEQ ID NO:52) when fused to the N-terminus of superoxide dismutatase (SOD) generates a Tat-SOD that can be expressed in *E. coli* and can enter HeLa cells when added to culture media (Kwon *et al.* (2000) *FEBS Lett.* 485(2-3):163-167).--

Please replace paragraph **[0112]** beginning at page 34, line 28, with the following:

--**[0112]** Cell receptor ligands include ligands that are able to bind to cell surface receptors (*e.g.*, insulin receptor, EPO receptor, G-protein coupled receptors, receptors with tyrosine kinase activity, cytokine receptors, growth factor receptors, *etc.*), to modulate (*e.g.*, inhibit, activate, *etc.*) the physiological pathway that the receptor is involved in (*e.g.*, glucose level modulation, blood cell development, mitogenesis, *etc.*). Examples of cell receptor ligands include, but are not limited to, cytokines, growth factors, interleukins, interferons, erythropoietin (EPO), insulin, single-chain insulin (Lee *et al.* (2000) *Nature* 408: 483-488), glucagon, G-protein coupled receptor ligands, *etc.*). These cell surface ligands can be useful in the treatment of patients suffering from a disease. For example, a single-chain insulin when expressed under the control of the glucose-responsive hepatocyte-specific L-type pyruvate kinase (LPK) promoter was able to cause the remission of diabetes in streptocozin-induced diabetic rats and autoimmune diabetic mice without side effects (Lee *et al.* (2000) *Nature* 408:483-488). This single-chain insulin was created by replacing the 35 amino acid resides of the C-peptide of insulin with a short turn-forming heptapeptide (Gly-Gly-Gly-Pro-Gly-Lys-Arg; SEQ ID NO:53).--

Please replace paragraph **[0165]** beginning at page 34, line 28, with the following:

--**[0165]** The NVSC1 primer sequence is 5'-TCCTGCAGCCCGGGGGATCCTCTAG-3' (SEQ ID NO:54).--

Please insert the accompanying paper copy of the Sequence Listing, page numbers 1 to 26, at the end of the application.